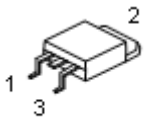
1.Features

- $R_{DS(ON)}$=8.5mΩ(Typ.),V_{GS}=10V
- Advanced trench process technology
- High density cell design for ultra low on-resistance
- Fully characterized avalanche voltage and current

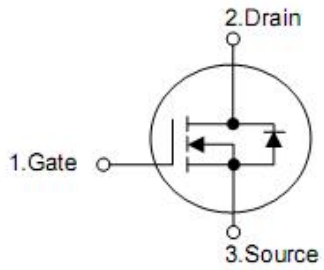
2.Applications

- DC-DC Switching
- MOTO Control
- Power Bank
- LED Lighting Power

3. Pin configuration



TO-252



Pin	Function
1	Gate
2	Drain
3	Source

4. Maximum ratings and thermal characteristics

(Ta=25°C,unless otherwise notes)

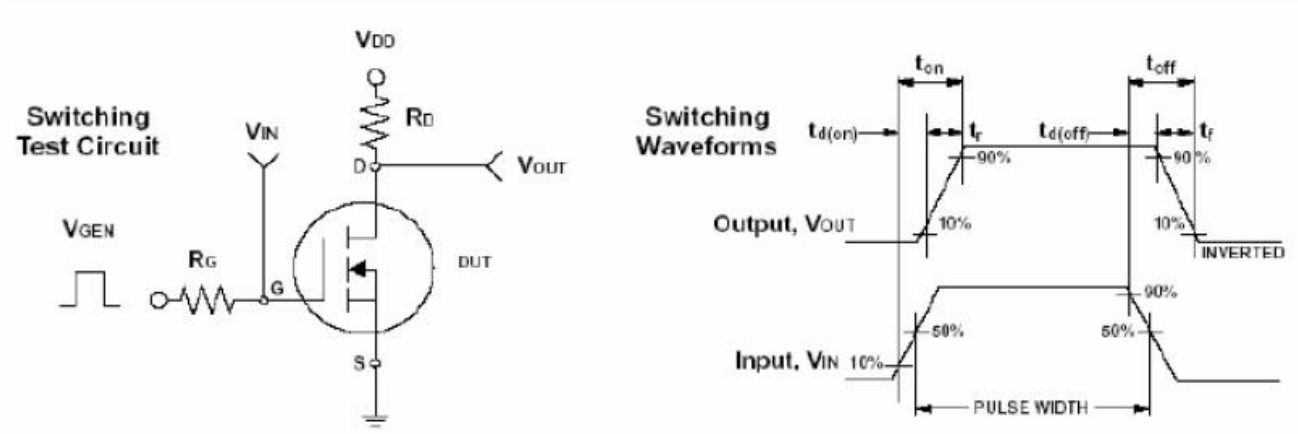
Rating		Symbol	Value	Unit
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	±20	V
Continuous drain current		I_D	40	A
Pulsed drain current[4]		I_{DM}	160	A
Maximum power dissipation	T_A=25°C	P_D	60	W
Operating junction and storage temperature range		T_J/T_{STG}	-55 to 150	°C
Junction-to-case thermal resistance		$R_{\theta JC}$	2	°C/W
Junction-to ambient themal rasistance (PCB mount)[2]		$R_{\theta JA}$	50	°C/W

Note:1.Repetitive rating:pulse width limited by the maximum junction temperation
2.1-in^2 2oz Cu PCB board
3.Guaranteed by design;not subject to production testing
4.Notes:Pulse width≤300μs,duty cycle≤2%

5. Ordering information

Part number	Package
KND9103A	TO-252

6. Typical application circuit



7. Electrical characteristics

(Ta=25°C,unless otherwise notes)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Static						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	30	-	-	V
Drain-source on-state rasistancem	$R_{DS(ON)}$	V_{GS}=10V,I_D=30A	-	8.5	10.5	mΩ
		V_{GS}=4.5V,I_D=20A	-	13.5	18	mΩ
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.6	3	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=24V,V_{GS}=0V	-	-	1	μA
Gate-source forward leakage	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
Dynamic[3]						
Total gate charge	Q_g	I_D=30A V_{DS}=15V V_{GS}=10V	--	8	--	nC
Gate-source charge	Q_{gs}		--	3	--	nC
Gate-drain (“miller”)charge	Q_{gd}		--	2.8	--	nC
Turn-on delay time	$t_{d(off)}$	V_{DD}=15V I_D=1A R_G=6Ω R_L=15Ω V_{GEN}=10V	--	12	--	ns
Rise time	t_r		--	5	--	ns
Turn-off delay time	$t_{d(off)}$		--	28	--	ns
Fall time	t_f		--	5	--	ns
Input capacitance	C_{iss}	V_{GS}=0V V_{DS}=15V f=1.0MHz	--	910	--	pF
Output capacitance	C_{oss}		--	190	--	pF
Reverse transfer capacitance	C_{rss}		--	95	--	pF
Source-drain body diode characteristics T_J=25°C,unless otherwise notes						
Diode continuous forward current [4]	I_S	T_J=25°C		0.8	40	A
Diode forward voltage	V_{SD}	I_S=20A,V_{GS}=0V		0.8	1.5	V

8. Typical characteristics

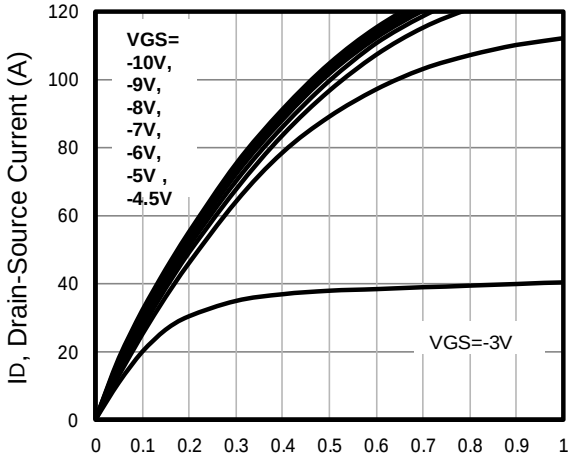


Fig1. Typical Output Characteristics

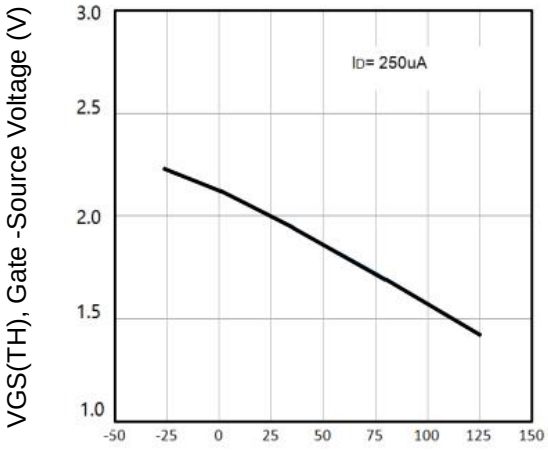


Fig2. Threshold Voltage Vs. Temperature
Tc, Case Temperature (°C)

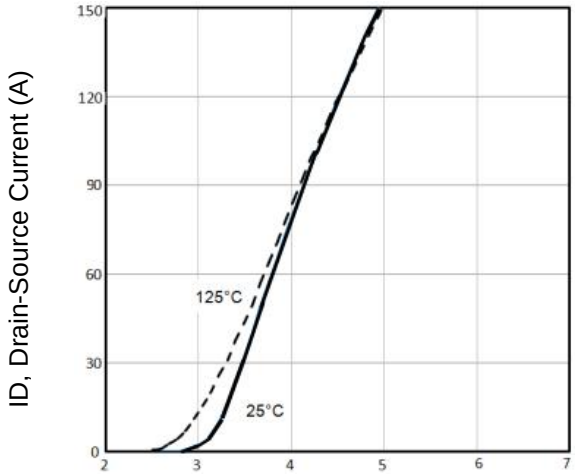


Fig3. Typical Transfer Characteristics

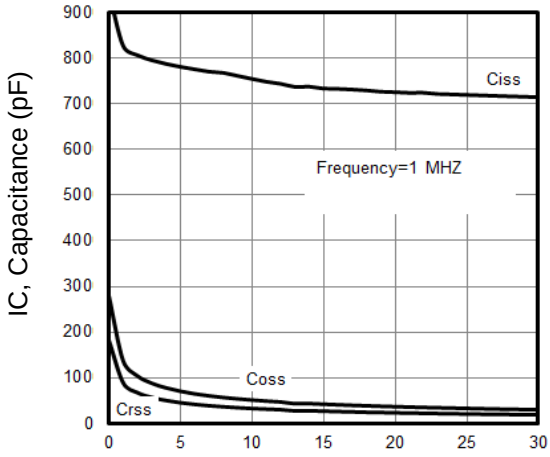


Fig4. Typical Capacitance Vs. Drain-Source Voltage

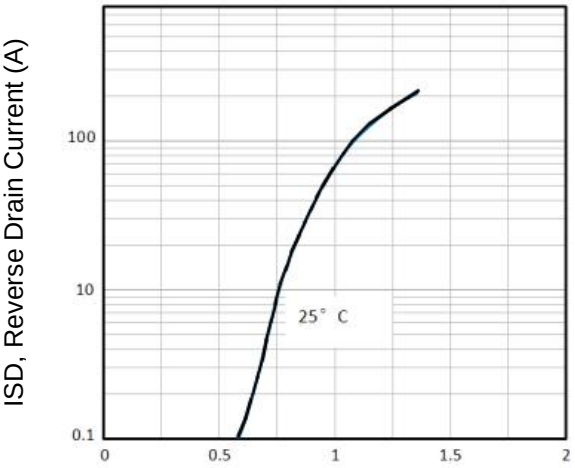


Fig5. Typical Source-Drain Diode Forward Voltage

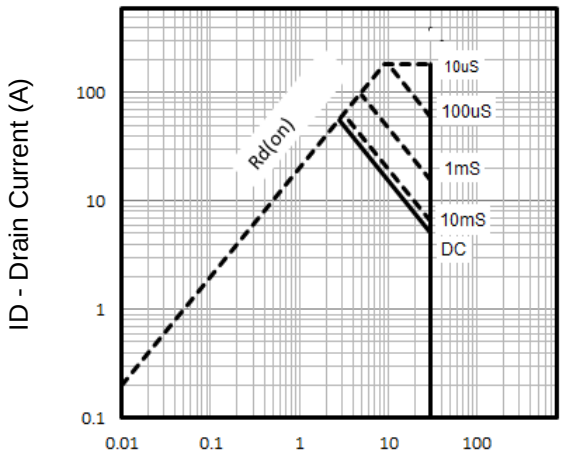


Fig6. Maximum Safe Operating Area